

CLAIMS

What is claimed is:

1. A coolant nozzle for use on a machine tool having a rotating bit, the nozzle comprising:
 - at least one coolant inlet;
 - at least one coolant outlet;
 - internal surface portions defining one or more passageways between the at least one coolant inlet the and at least one coolant outlet; and
 - an aperture for accommodating the bit.
2. The nozzle of claim 1 wherein the internal surface portions are formed in a laser sintered ceramic body.
3. The nozzle of claim 1 wherein the one or more passageways includes a plenum surrounding the aperture.
4. The nozzle of claim 1 wherein the at least one coolant outlet comprises a plurality of coolant outlets symmetric around an axis.
5. The nozzle of claim 1 wherein the at least one coolant outlet comprises a plurality of coolant outlets positioned to direct associated coolant outlet streams toward an axis of the bit when said bit is in an installed position.
6. The nozzle of claim 5 wherein the plurality of coolant outlets are elongate.
7. The nozzle of claim 5 wherein the plurality of coolant outlets comprises at least five outlets and the at least one coolant inlet is a single coolant inlet.
8. The nozzle of claim 1 wherein the aperture has a diameter of less than 3cm.
9. The nozzle of claim 1 in combination with the machine tool and bit and wherein a plurality of coolant outlet streams exit the at least one outlet and impact obliquely along a side of the bit.

10. A coolant nozzle for use on a machine tool having a rotating bit, the nozzle comprising:
 - a through-aperture for accommodating the bit;
 - a coolant inlet;
 - a plurality of coolant outlets at more than one angular position about the through-aperture; and
 - internal surface portions defining one or more passageways between the coolant inlet the and the plurality of coolant outlets.
11. The coolant nozzle of claim 10 wherein the plurality of coolant outlets are each at a common radial position relative to an axis and are each at a unique angular position about said axis.
12. The coolant nozzle of claim 11 wherein there are no other coolant outlets in addition to the plurality of coolant outlets.
13. The coolant nozzle of claim 10 wherein the nozzle surrounds a full 360° of the through-aperture.